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NEOINTIMAL APPEARANCE OF LATE RESTENOSIS AFTER SIROLIMUS-ELUTING STENT IMPLANTATION: AN OPTICAL COHERENCE TOMOGRAPHY STUDY

i2 Poster Contributions
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Background: Several studies have demonstrated that late restenosis associated with the late catch-up phenomenon was seen in lesions after drug-eluting stent (DES) including sirolimus-eluting stent (SES) implantation. The prevalence of it after SES implantation was about 2-3%, and it was not a rare event. Some studies have reported the relationship between late restenosis and inflammatory reactions due to polymers. However, the mechanism of late restenosis after DES implantation has not yet been fully evaluated. The aim of the present study was to evaluate the neointimal characteristics of late restenosis after SES implantation by the use of optical coherence tomography (OCT).

Methods: We examined the neointimal characteristics of 30 restenotic lesions after SES implantation by OCT [late restenosis (>1 year after initial procedure) =12 lesions; early restenosis (within 1 year) =18 lesions]. Qualitative neointimal tissue analysis included the assessment of tissue structure, backscattering, visible microvessels of intraintima, and presence of intraluminal material. Lipid-laden intima was defined as neointima with marked signal attenuation and a diffuse border.

Results: The mean duration of OCT after SES implantation was 28±9 months in late restenosis lesions and 8±1 months in early ones, respectively ($p<0.001$). Low backscattering structure was more often seen in late restenosis compared with early one (92% vs. 44%, $p=0.018$). Although the incidence of intraluminal material was not significant (25% vs. 17%, $p=0.660$), lipid-laden intima and intraintima neovascularization were more frequently observed in late restenosis (75% vs. 22%, $p=0.008$, and 75% vs. 28%, $p=0.024$, respectively).

Conclusions: The present OCT study demonstrated the differences of neointimal appearance after SES implantation between late and early restenosis. Especially, markedly atherosclerotic change of neointima was more frequently observed in late restenosis.